

1. If two lines are perpendicular to one another then the relation between their slopes  $m_1$  and  $m_2$  is:
  - (a)  $m_1 = m_2$
  - (b)  $m_1 = \frac{1}{m_2}$
  - (c)  $m_1 = -m_2$
  - (d)  $m_1 \times m_2 = -1$
2. The coordinates of the point  $P(-3, 5)$  on reflecting on the  $x$ -axis are:
  - (a)  $(3, 5)$
  - (b)  $(-3, -5)$
  - (c)  $(3, -5)$
  - (d)  $(-3, 5)$
3.  $A(1, 4)$ ,  $B(4, 1)$  and  $C(x, 4)$  are the vertices of  $\triangle ABC$ . If the centroid of the triangle is  $G(4, 3)$  then  $x$  is equal to:
  - (a) 2
  - (b) 1
  - (c) 7
  - (d) 4
4. Find 'a', if  $A(2a + 2, 3)$ ,  $B(7, 4)$  and  $C(2a + 5, 2)$  are collinear.
5. Find a point  $P$  which divides internally the line segment joining the points  $A(-3, 9)$  and  $B(1, -3)$  in the ratio  $1 : 3$ .
6. Use a graph paper for this question. Take  $2cm = 1$  unit along both the axes
  - (a) Plot the points  $A(0, 4)$ ,  $B(2, 2)$ ,  $C(5, 2)$  and  $D(4, 0)$ .  $E(0, 0)$  is the origin.
  - (b) Reflect  $B, C, D$  on the  $y$ -axis and name them as  $B', C', D'$  respectively.
  - (c) Join the points  $ABCD D' C' B'$  and  $A$  in order and give a geometrical name to the closed figure.
7. Find the equation of a line parallel to the line  $2x + y - 7 = 0$  and passing through the intersection of the lines  $x + y - 4 = 0$  and  $2x - y = 8$ .
8. Line  $AB$  is perpendicular to  $CD$ . Coordinates of  $B, C$  and  $D$  are respectively  $(4, 0)$ ,  $(0, -1)$  and  $(4, 3)$ . Find:
  - (a) Slope of  $CD$
  - (b) Equation of  $AB$

